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HOW TO IMPROVE Bad Negatives

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Preface

A very scant preface, if any at all, will be necessary upon this subject. Thousands of bad negatives exist, thousands more will come into existence. We cannot always secure another opportunity to take a picture that comes out badly and so we make the best of it and print it as well as we can. As no book exists on this all-important subject, I offer my experience for the benefit of the large and growing fraternity of amateur photographers, feeling that some such work is urgently needed.

The Author

How to Improve Bad Negatives.

CHAPTER I.

UNDER EXPOSURE.

A BAD negative is one that will not, for some reason or reasons, yield a perfect print at the first printing. It may be too thin, too dense, scratched, partially fogged, stained, chalky, lacking in correct perspective. It may have pin or bubble holes, contain too much detail or the reverse. Its shadow portions may be nothing but almost clear glass, and it may be over or under exposed and developed. In fact, a bad negative may be so in such a bewildering variety of ways that we can hardly blame the frequent user of plates and films for making his or her share of bad or indifferent negatives.

A really good one is decidedly more of a rarity than a defective one.

There is one class of bad negatives that is almost universally conceded to be beyond salvation, a fit and proper candidate for the waste barrel and nothing else. I refer to the underexposed negative, and as this class may very likely contain some lost face, some scene we shall never see again or something that we cannot duplicate we *must* save the underexposed negatives as well as any other bad ones. Let me say that I have produced many good negatives from underexposed negatives so thin that they would not make a respectable print—almost clear glass, in fact, showing as a positive when examined by transmitted light. The image is there, and often it has quite a fair amount of detail, but it is too utterly thin to print. How shall we save it? By intensification, some will say. Not so, for intensification will only change a bad negative to a worse

one in this instance. We can only build up where there is something to build upon, and that something in this instance is the highlights, so to do this would merely increase the contrasts a little to the great disadvantage of the rest as a whole. Besides that, intensification is *never* the thing an underexposed negative needs, for it does not add to the exposure; it simply heightens contrast, and is only suitable for overexposed negatives or those which were properly exposed but underdeveloped. So many entertain the idea that intensification is the proper treatment for any kind of negative that needs doctoring short of a too dense one, and that notion results in manys the negative being further spoiled that could have been made good. However, of intensification later. We have to consider the case of a bad underexposure. I have one before me now. It is of a child, taken indoors during an illness which

proved fatal, and its sorrowing mother brings it to me and begs that I do something to it so that she can have one picture of her child. It has been taken in the middle of a room, the face is easily seen by holding it to the light and looking through it whilst all the rest of the objects in the room show some detail, yet the whole is almost clear glass. The negative is truly unprintable, and the lady knows it, through having asked many to try and make a print. Fortunately it has not been retouched, and I promise her a print the day after tomorrow. A good one? Yes, it would be satisfactory I assured her, and after many promises of any price at all for such a print the sorrowing mother departs. I at once mix some bichloride of mercury and water —the strength really does not matter much, though ten grains to the ounce of water is a good one. Dissolve ten grains of bichloride in an ounce of

water, then, and when dissolved add ten grains of bromide of potash. Filter this, pour into a clean tray and immerse the negative. Unless it be a very small negative it will be wise to make up six or eight ounces of this, as too little may prevent even covering of the plate, and thus produce streaks. Into this solution (it is a deadly poison, and must not be left around or carried to the lips on the finger tips) the negative goes, and we watch it as it bleaches. In a very few moments it will have turned into a positive. The boy in his chair shows plainly, and the other objects in the room, though properly subordinate, are all readily distinguished. It is then time to remove the negative and let it soak in water whilst we prepare the camera. Having a drawing board covered with black paper on an easel near a diffused light I remove the negative from the water and with moist water colors I proceed to spot

out some little defects. All the black spots I touch out with flake or zinc white, all the white spots with Ideal spotting medium. In this way I perfect the negative, and then fasten it to the black paper covered board on the easel. After getting the light just right on it I place my camera squarely before it and at different distances make two exposures—one to give an exact size duplicate, the other enlarged four times. Several exposures are made, and I then take my plates into the dark room and develop. I exposed about right, and to my satisfaction I carry development right up to excellent density. I could make them as dense as the original was thin if I chose, but that would be of no advantage. I merely mention it to show how great a remedy this is. Now, while the plates are fixing, I rinse all the spotting color off from the bleached negative and restore its color (also increasing its density, but

that is no matter now) by flowing it with water to which a little strong ammonia has been added. My negatives are now fixed, and I rinse, dry and later finish up a print from each on Solio. On the first sight of the prints my client nearly faints with joy, and is so glad of the large one. I pursue this method with all undertimed negatives, and any one who can copy a picture can do it, too. I use a pyro-soda developer generally, and I try to time so that the plate does not hang back any in normal developer, but comes along gradually and finishes with good detail and proper printing density. While the bleached negative is there it is no trouble to make another exposure if the first is wrong and there is no use wasting time on an exposure that is far out of the way as the results are not good. Get the time about right, and the reproduced negative will be perfectly satisfactory.

In my practice the easel rests on a

long platform, at right angles to it, and upon this is also the camera. The amateur probably has no such thing, or the need of it, so a wall, easel or board will do just about as well so long as the camera is set up squarely in front of the plates. If the bellows of the camera are too short to even reproduce a negative same size as original, I advise the expenditure of a dollar on a supplementary lens for enlarging. This fits over the front of the one on the camera, and with a good lens, plates or prints can be enlarged four to eight diameters, when one could not copy even same size without. I have found the lenses of a Chicago concern vastly superior to any others I have tried.

CHAPTER II.

UNDER DEVELOPMENT.

ANOTHER form of bad negative is the under-developed one. It is not so serious a case as the under-exposed one, for if it was timed properly its only fault is that it is too thin, lacks printing density. Though a wealth of detail may be apparent on the plate, it is unfit to use as it is, for silver reduces too evenly under it when the paper is exposed to light. Plates that have been properly or over-exposed come under this head, and even if a trifle under-exposed, they may also be under-developed and still saved. One so rarely sees an over-developed plate nowadays that it would be a nearly safe rule to say develop five minutes longer than is

thought right. So many are ignorant of the proper point to carry development to, and as soon as they see the image come up drop the plate into the fixing bath at once, without allowing density enough to gather to define the distances and afford the necessary degree of resistance to light. As I say, a very great fault lies in under-development, and even those who hardly know the reason why much of their work is bad would improve their average by allowing their plates or films to remain in the developer three to five minutes after they consider development complete. But we are not treating of developing here, so let us proceed to consider the various methods of improving under-developed negatives. But, first let us understand what an under-developed negative is like. It is easy to see through it, for one thing, and even when plenty of detail is upon it one can still read print through it. If we put it into a

frame with sensitive paper under it and seek to obtain a print it will yield a *very dark print* quickly, and there will be little contrast. Even the sky part, which should only darken a little unless there be black clouds in it, will print as dark as the rest. Things that should be light-colored print as dark-colored, and, in fact, the entire values are changed to a far lower tone than should be represented. It is flat and unmistakably poor—this print from the under-developed negative. Now there are three ways to cure it of its illness which will be found desirable, viz:

1. If but slightly under-developed. —The proper resistance may be had by printing in weak light or by pasting one, two or three thicknesses of white tissue paper over the front of the printing-frame. With printing out paper shade printing instead of a broad glare of sun right on the frame is *always desirable,* and, though it will

naturally take a longer time to secure a print, more satisfactory pictures will be obtained with any but dense negatives. If no shade is convenient, then tissue the frames. When using developing paper a greater distance from the lamp one exposes the paper to, will take the place of shade printing, and tissue may be used in extreme cases. As the imperfect negative often is the result of impatience, so the poor print likewise suffers, for many are in a hurry, have too few frames, and so print right in sunlight to save time. This is all wrong with thin negatives. Use shade, tissue or ground glass in the frame under the negative, ground side out. In extreme cases tinted glass or tissue is used, a *light* green being occasionally employed. However, there are better cures when a negative is quite thin, so, if tissue or shade printing do not improve the print enough, we may try—

2. My remedy for quite thin nega-

tives. It is necessary to prepare a film for this purpose. I have used this method successfully for years and have not made it public till now. First, fog a few strips of rollable film by exposing them five seconds several feet from a lighted match in the dark-room. Then develop the film until just grayed over; fix, wash and dry as usual. Use this film on the negative between it and the paper, and a surprising intensity will be given at once, if the negative is examined by transmitted light. The film side of both negative and film should be together, as then the celluloid back of the film strip will protect the negative the same as a coat of varnish. The film is so thin that no disagreeable diffusion will ensue. In fact, what little is thus secured is often postively advantageous in covering defects in portraits or adding to the effect of landscapes. However, if one desires all possible detail, it can be seen that it

is not impossible to use the intensifying film on the back of the negative instead of on its face. Every one should make a few of these strips of varying density (none may be extremely dense, though), and use in all but severe cases. This plan is the very best I know of, and as it avoids the use of poisonous chemicals for intensication and saves both time and money, I cannot too highly recommend it. How many times I have printed negatives for others with one of these gray films between plate and paper and had the owners speculating how I had secured such fine prints from the poor negatives, when they could not, and that without changing the negative.

3. Lastly, we may consider the greatly under-developed negative. The weak, miserable thing, that printing paper fairly blackens under after a short printing. If it had *only* remained five minutes longer in the developer (I cannot refrain from

again reverting to this matter, it is so common an error), how good it might have been. However, we have it and it must be doctored. To this end we must prepare or purchase a reliable intensifier that redevelops. All of these intensifiers are poisonous, so beware of leaving them about the house or carrying any to the mouth on the fingers, or using them with cut hands unless covered with rubber finger stalls. Among the best are the EWN silver intensifier, a real redeveloper which has been prepared and sold for fifteen odd years by myself; the Agfa, the iodide of mercury and the mercury-sulphite, to be had at shops generally. If one wishes to prepare a good one, there is nothing better than Monckhoven's, which is made up very simply as follows:

Number 1.

Water ..... 10 ounces.
Bichloride of mercury ... 100 grains.
Bromide of potash ..... 100 grains.

Number 2.

Water ..... 10 ounces.
Cyanide of potash (chem. pure) ..... 100 grains.
Nitrate of silver ..... 100 grains.

Do not use either until No. 1 is wholly dissolved and the turbidity of No. 2 is quite settled and cleared.

To intensify a plate or film, either fresh from the wash tray or years old, (soak it in water five minutes if the latter) proceed as follows: Pour each chemical into a tray used for no other purpose (or extremely well cleaned with sapolio if otherwise used, both before and after use), and into No. 1 drop the negative, face up, and rock. The room may be well enough lighted, but work in a back part of it. In this solution the negative will soon bleach until it is a positive, and after that stage is reached it may be either removed for moderate intensification or left several minutes for a greater degree. Then wash under the tap a

moment and plunge it into No. 2, where it will quickly blacken over. Very likely it will start in streaks, but it will soon become even, and as soon as all milkiness disappears from its back it is done and needs only reasonable washing to be finished. If it remains in this bath longer than enough to clear the milkiness it may lose all its acquired density through the action of the cyanide, so one should examine it often by raising on edge with a pointed stick or otherwise. A most remarkable change for the better will be apparent at a glance, and the negative will probably yield just the kind of print it ought to. If too dense a short immersion in No. 2 will reduce it, and if not dense enough the whole process may be gone through again until it has acquired all necessary density. Little practice is needed to acquire the knack of judging how long to bleach, and, as stated, if over or under-done, the remedy is at hand.

There are other methods of obtaining a good print from an under-developed negative, such as first making a positive of the negative on film or glass and then making a new negative from this, and by carefully proportioning the developer producing all the detail of the first one with a greater degree of density, or, if that, too, comes out thin, by placing the two negatives together so they match exactly and then securing the two with binding strips. This, of course, results in a marked improvement, but it is quite a neat task to get the two negatives in perfect register. It is better to make a positive full of detail, expose a medium-speed plate in contact with it to the light of a match a few seconds, and then develop in retarded developer, or take the negative out of normal developer now and then, after detail begins to appear, and let it soak two minutes in a bath of ten ounces of water containing twenty

grains of bromide of potash, returning it to the developer after rinsing, and thus retarding development enough to secure both the detail of the original and the contrast it did not contain.

CHAPTER III.

REDUCTION OF CONTRASTS.

Contrasts.—One of the commonest failures in photography is a negative with too great contrasts. One may photograph in places where the contrast exists and must be either taken as it is or left—as, for instance, a dark house and green trees against a bright sky, a bronze statue on a marble or granite pedestal; or contrast may be got by using developer which is not properly balanced for the plate (very often the case when one maker's developer is used on another brand of plates). Again, we may use our camera almost entirely for snapshots and more than half of all the snapshot negatives made are entirely too full of contrast to afford good prints until

doctored, especially when the amateur uses very strong developer and keeps developing until detail shows in the shadowed parts. Of course, the best cure for contrast would be a properly balanced developer, one that would cease to act on the highlights when developed and only attack the shadows, or one so mixed as to work more actively on the shadows than upon the lights, so that both would be properly developed at the same time, but in most instances developers and their proper use are too little understood by the users to permit of such discriminating and scientific mixture. The majority buy any good developer and chance it, blaming the plate if the results are not what they expected. The outdoor photographer is dealing with hardly anything else but contrasts of greater or less intensity. He exposes on a view the sky of which needs $^1/_{50}$ second, the mid distance $^1/_5$ and the foreground one or two

seconds, and no matter which way he splits the difference, some parts of most of his negatives are over-exposed, some correctly exposed and some insufficiently timed. Into one developer the plate is thrown, and there it stays, as a rule, until the least exposed part is developed as much as it possibly can be. What is the result? Simply that the other parts are very greatly over-developed and are so dense that they will hardly print. If we print long enough to bring out the dense parts (the highlights) we shall entirely smother the thin parts (shadows) and we think the negative of no value and probably cast it away. This, as I have said, is a very common occurrence with *snapshot work*, but there are ways of making such bad negatives so good that prints from them will delight their owners and be greatly prized. To know how to doctor this kind of bad negative should be one of the very first things learned

after developing a few plates, because it will be used more than any other form of improving. Remember, this is not a case of too much density all over the negative (that will be treated later), but of excessive contrast. We will consider two methods.

1. With Persulphate Reducer.

A solution of persulphate of ammonia, 15 grains to the ounce of water, is made up. Nothing but the best persulphate out of a tightly corked bottle containing the *dry* chemical will do. Merck's can be had of some dealers and is good. A better way, however, is to procure the EWN tubes of persulphate of ammonia, as it often does not keep in the bottle after opening it, and one loses three-fourths of the bulk. The EWN tubes each contain the exact quantity for the day's use and, being in glass with rubber ends, will keep indefinitely and afford best results. Dissolve either 30 grains of bulk persulphate or one tube

of EWN in two ounces of water. It will dissolve with a crackling sound if good. Have ready a tray containing ¼ ounce sulphite of soda in 5 ounces of water and also a fresh fixing bath of hypo one ounce, water six ounces. When the persulphate is all dissolved immerse the negative either wet or dry, as preferred, and rock the tray. The persulphate will attack the dense highlights first and as a rule will reduce their density just enough ere they act upon the shadows at all. Examine the negative frequently, and when the dense parts are thin enough douse in water, then in the sulphite solution a few moments (to stop the action of the reducer), and finally place the negative in hypo a minute, then wash well and dry. This very simple formula will be found invaluable for all negatives of the character described, and as any one can master the details of its use in one trial, there is no excuse for any more poor prints.

Its use would pay if only one print was wanted, so greatly does it improve the negative.

Second Method.—That of retarding the printing of the shadows so that they will not overprint in the time necessary to bring out detail in the highlights. In case the contrast is but slight, this method is satisfactory, though if many prints are to be made the first method had best be resorted to, since much time is lost through slow printing. If the highlights are so dense that they will under no circumstances yield detail, this method will not do; it is only good for slight contrasts. The shadows may be retarded in many ways, of which I shall only mention a few of the most effective. In fact, the same plan will be carried out all through this book, as it is not my intention to bore or confuse the reader with a great profusion of methods when one of several will

amply suffice. We may retard shadows successfully in the following ways:

1. By patting with blue or crimson lake. Obtain a half pan of each color in good, moist water colors, Winsor and Newton by preference. Wet the forefinger and rub on the paint, then pat the paint onto the back of the negative back of those parts that print too deep. The cuticle of the forefinger will leave the paint when used quite sticky, in lines, and by cross-patting one can break those lines up into delicate stipple. Use very little color or else if much is laid on gradually pat plenty of it off with a clean finger. The blue will generally suffice and is often used on dark hair, grass, foliage, etc. Properly done it is quite effective, and as it can be done in a few minutes it has at least that advantage. When the patting laps over onto parts not requiring it, remove with a damp stump. The stump can be used to re-

move too heavy patting also if just gently dropped on the paint point down. Get a packet of stumps at the artists' supply store when buying the paint; they will come in handy. The patting being finished, all that remains is to paste a thickness of white tissue over the front of the frame and proceed to print.

2. With ground glass substitute. Prepare the following:

Gum mastic.....	20 grains
Gum sandarac.....	90 grains
Ether	2 ounces
Benzole	1 ounce

When dissolved this fluid will be found to produce the same effect as ground glass if a little is poured on the back of a negative. Make one bottle as per formula and another with the faintest trifle of picric acid or any good yellow dye in it for extra retarding.

To use flow a puddle on the back

of the negative, which is balanced on the tips of the fingers and held at the corner by the thumb. Let the puddle spread, aiding it by gently inclining the plate and carrying it to both upper corners, down to thumb and off and back into the bottle from lower right hand corner. It will set in a minute or less. The grain can be regulated by the benzole. More will give a coarser grain, less a finer one. Now with a knife scrape away all of this varnish that covers highlights, and you will have retarded the shadows 50 per cent. and left the highlights just as they were. This, in many cases, will even the negative up perfectly. If the shadows are *very* thin use the yellow varnish. Tissue as before and print. While on the subject of ground glass varnish, let me add that a dose of it on the back of a flat, over-exposed negative is excellent for the surface readily takes the pencil and dull lights can be nicely bright-

ened up with a few strokes here and there. One can add detail or lights very easily in this manner. But remember that every pencil mark on the back means a white spot on the print or at any rate a lightening up, so be cautious.

3. With tissue. Bind the negative to a clean glass of the same size, leaving the face out. Now gum cepa skin tissue to the back and cut away all parts that cover highlights as with ground glass varnish. With a stump dipped in lead scraped from a pencil tint the paper over all deep shadows. Much power is in the hands of the operator here, and as soon as some little practice has led him to know what results to expect he may feel confident of making vast improvements on contrasty negatives. As all this work will be fully a quarter of an inch back of the printing face, it will not show markings at all, though many contend that it is better done on

tissue stretched on the back of a built up frame. In this case screw quarter-inch strips to the front of the frame, thus raising the paper quite half an inch from the printing face. For retarding use a wash of gamboge water color applied to the tissue over shadows (blue for very slight retarding), holding the negative in the frame the while, so as to see where to apply tints.

There are no better ways than the above three perhaps. I would not advise trying any more until these are mastered.

CHAPTER IV.

EVEN REDUCTION AND DODGING.

Even Reduction.—When a negative is too dense in all portions, it will be found a very slow printer. It may answer, if one is of a patient nature, for platinum printing, but its finer qualities are apt to become lost even on that sensitive paper, while on aristotype paper it yields no good results. Such density is the result of over-development, and though a somewhat rare condition it must be included in this treatise. Many purposely over-develop and then reduce a trifle in an even reducer, claiming that a great improvement is thereby effected, since all slight veil, due to chemical fog, is removed from the negative, and it is vigorous yet a quick printing negative.

An even reducer is one which acts with the same vigor on all portions of the negative at once, wholly unlike the persulphate of ammonia. Of prepared reducers, the EWN Magic is the simplest and cheapest. One can also make use of Farmer's simple formula or use chloride of iron or cyanide of potash. The latter being very poisonous is objectionable in that respect, though thoroughly satisfactory otherwise. The chloride of iron often stains the negative, so I advise the following modification of Howard Farmer's reducer. In four ounces of water dissolve half an ounce of hypo-soda, then add ten to twelve grains of red prussiate of potash, and when dissolved immerse the negative. In this reducer the plate will rapidly thin down and by frequently removing the negative and examining it, one can secure as much or little thinning down as may be required. Never leave a plate in the solution without any attention, for this

reducer will bring it down to absolutely no image at all in time. The strength can be regulated by the potash, the more there is of that the more rapid will be the action of this reducer. When a plate is sufficiently reduced, douse it in running water at once and wash away all chemicals remaining on it. This reducer can be used on an old negative or on one right out of the hypo bath unwashed, and for even reduction cannot be surpassed. The solution is fortunately exceedingly inexpensive, as it does not remain good for any length of time and cannot be kept. I rarely weigh the chemicals for it, as almost any strength will do—a bright canary-colored solution of the red prussiate of potash and a good lump of hypo added comes near enough after one has weighed it a few times and got used to the comparative proportions.

Local Reduction.—There are times when a few spots on a negative print

too white, and if we print until detail is at last secured, then we utterly ruin the shadow parts. A face in a portrait, for instance, may get considerably over-developed and refuse to yield detail when printed. Or the white parts of a picture may finish developing long ere the detail is out elsewhere on the plate and in parts be too strong, whilst the rest of the negative is just right. To apply a little reducer locally on the negative is but a common sense action and is very often resorted to. We may, if the part be small, soak a tuft of cotton in the Farmer's Reducer or Magic Reducer and merely dab it on the parts to be reduced or we may use a camel's-hair brush of suitable size and thus apply it, taking great care to keep within the outlines of the part to be reduced. For portraits or detail in white lace or such cases, an easy method is to gently rub the strong parts with a chamois skin pad soaked in alcohol. This will

reduce moderately, and is a favorite method when extreme thickness does not prevail. Even a gentle rubbing with the chamois alone will reduce no little, but it is still better with alcohol, which removes a blackness to be found on the surface of all negatives after drying. Oil, grease, wax in turpentine, and other mixtures have also been found good, but polishing and the application of benzine must follow the use of all oils or grease.

Etching.—For local reduction or even the entire elimination of heavy white printing portions of the negative, many use the etching knife or chisel in preference to chemicals. It is part of the regular course in retouching, and those who some day become interested enough in photography to learn retouching will be given more practical examples to work out with their own hands than theory or rules. So far as etching can be described, it is the dainty removing of

thin layers at a time of the gelatine emulsion with a suitable sharp pointed steel implement. If we wish to merely reduce a white rock so that some detail will print in it and elect the etching process we must scratch and scrape and chisel the thinnest layer at a time away from the rest. If we desire to wholly remove the rock we must chisel more and more until we have reduced the rock to the same density as the surrounding grass or whatever it stands out against. This is far beyond the power of an unpracticed hand, and many would prefer to put such work in the hands of a skilful professional. It is nothing more than delicate chiseling, but it requires patience and practice. Good tools are made by fitting large needles into handles and grinding them to both chisel and scraping points so that the cutting edge of some is at the point whilst on others it is at the side. A fine penknife and a stump for rubbing on the

very finest emery powder completes the outfit unless one wants to buy a retouching frame. By putting an easel leg onto a printing frame containing a ground glass and setting on a white covered table facing the light, one may cover head and frame and do as good work as if an expensive retouching frame or desk were purchased.

Blocking Out.—To entirely remove portions of a negative so that no printing can take place from such parts, we resort to blocking out. This is done by covering the parts that are not desired with opaque paint or paper. It is resorted to when the sky is of bad quality, when one head is wanted out of a group, or when the surroundings are undesirable. The blocking out of portions is most easily accomplished by first making an aristo print and cutting out nearly but not quite the portion desired blocked out, and after sunning this till it is bronzed, gluing

it into the back of the negative. This being done, it only remains to join the edge of the horizon or garment or head —whatever is to remain—to the paper backing with photographic opaque which is red water-color that sticks to glass and dries quickly. For fine work it is always applied to the face of the negative. If we desire to block a poor sky we could do it all with the opaque, but a piece of black paper over the *main* part or a bronzed aristo print cut out *nearly* to the horizon line will save a tedious waste of paint and will be more permanent, as the opaque often flecks off or gets scratched. At the very juncture of the tree line to the sky, if the branches are delicate, the work must be done under a reading glass, with a very fine brush, on the gelatine side. If the lines of buildings are to be followed see that the paint does not encroach upon them. Having thus blocked out a sky be sure to use a suitable cloud negative after-

wards, or else gray the sky a trifle by sunning. Sometimes we find a statue outdoors that we wish a picture of, but without its surroundings. It often interferes with a satisfactory study of a statue if the lines of buildings, fences, trees and poles distract the eye, and we feel that the statue would be better with either a plain black or white background. For the latter we simply paint all around it with opaque, using great care not to overrun the lines; the result will be that all buildings are eliminated in the print, and nothing interferes with a satisfactory study of our statue, as it stands out against perfect white. The public statues in many cities are best admired when the negatives are so treated. If we desire a black background we merely cut the outline with the etching knife and work up to that with a sharp chisel, leaving clear glass all around. Blocking out faces or figures from a group is similarly accom-

plished, and if carefully done is usually a success. Wherever a touch of blocking is done the print will be white. I have seen some excellent snow scenes which were made from pictures taken in the fall and in whose foreground were disagreeable features. By blocking out the foreground right up to the foot of each tree and shrub, save a few holes left for tracks, the dead leaves and a poorly defined path, or branches, on the ground, were turned into smooth, white snow. A layer of opaque along the top of the branches gave them a genuine snow-laden appearance, and the whole, as I say, was turned from an uninteresting scene to an interesting one. This is a step or two ahead of ordinary blocking and may not be legitimate photography, but it can be learned and will pay. As to the legitimacy, who cares, if it makes a bad picture into a good one?

Masking.—Sometimes a bad negative is only so on the edges or corners.

It would indeed be a pity to cast it aside for such defects, so we resort to thin paper cut-outs, or masks of the same size as the negative, but with a suitable opening, round, oval, or parallelogram These can be cut at one's leisure with a Robinson trimmer and metal forms, or can be bought in packages of assorted sizes and openings. Select a mask having just the right-sized opening to include all that is good, lay on the paper, close the frame and print. When done, there will be only the desired part, all the rest being white. With knife or trimmer cut away most of this white and the print will be left with a narrow white border, often very becoming when the picture is mounted on a card dark enough to show the contrast. If a black edge is desired it can be had if the center of the mask is saved and glued on a clear glass. When the print is made put the glass having the center in a frame and lay the print

down so it registers exactly and then sun a few moments. This blackens the white border as deep as may be desired, and when suitably trimmed confines the picture nicely.

CHAPTER V.

COVERING DEFECTS OF PLATE OR PRINT.

Spotting.—Theoretically, our negatives should be all ready to put out to print after developed, fixed, washed and dried. Practically this is rarely the case. In the first place, the backs have to be rubbed clean of all streaks or emulsion, and then, in the second place, the negatives must generally be cleared of defects such as pinholes or scratches. Pinholes sometimes arise from dust, sometimes from the action of the developer, and once in a while through bad plates. We find that they make a black spot on the print if not filled in, and we don't like it at all, especially if they come on the face of a portrait.

The old-fashioned remedy was to

plug these holes up (I use the word "plug" advisedly; it is so descriptive of the rough process) with red paint, sold as "opaque." This resulted in one thing—it made white spots on the prints and they, in turn, could be filled in with spotting color, whereas it is difficult to spot out black spots on the print, or even scratch them away, except on rough developed paper. That was the old process.

Now, if one had a dozen holes in the negative and plugged them up with opaque, there were a dozen white spots on each print made from the negative, and if there were twelve prints to make that meant one hundred and forty-four white spots on the prints to carefully cover.

At a time when I happened to be making a large number of prints from each of several negatives, I tired of this doing over of work once done, and after tedious experiment made a medium that would flow freely from

the brush, stick to the negative and *match* its tint. I made two tints, one warm black, the other cold, and as "Ideal Spotting Medium" they have been adopted the country over, because they are easy to use and save after labor.

To spot holes, use either Ideal Medium, Winsor & Newton's moist water-color (wetting the brush with *gum water*) or Indian ink. If the latter two, make a gum solution to wet the brush in of water, one ounce; gum acacia picked, 30 grains, and formalin, one or two drops.

If an old negative be scraped and the scrapings be soaked and then melted in a water bath over a slow fire, the resulting compound used hot is said to be excellent. All this mixing, however, is avoided by procuring the Ideal Spotting Medium, and, as it will last a double lifetime, it is not extravagant. Fill the brush with this medium by wetting at the lips (it's

perfectly sweet and clean) and rubbing over the cake till quite full. If in a great hurry, scrape some into dust and after wetting the brush very wet rub around in the scrapings till well worked. The brush will now flow freely and only requires wetting at the lips occasionally to last a week without again filling. Use a fine pointed sable brush and hold the negative with its face slanting in towards the body. If held on a thick book or a box, on a table before a window, so the arm has a rest, spotting can be quickly done. The idea is to *match* the tint of the negative, and a color must be taken which does. In the medium referred to, either the warm, cold or a mixture of both, will always match. With other medium it is necessary to mix several colors until the product matches. To find if our medium matches we paint some on the clear edge of the negative. Now, we touch the point of our charged brush

to the spot, but always remember two things in spotting:

1. If it is possible to fill the hole with five or ten little touches the result will be superior to work done in one stroke.

2. It is easier to lay on several *thin* washes or dabs and thus approach the match gradually, than it is to match the tint in one heavy stroke. If too light, we can darken it by another application, but if too dark we must remove it with a clean brush filled with water and try again.

All color follows back into the brush or has a tendency to, so be sure to tilt the negative towards the body, not away from it. For small pinholes a pointed match stick is excellent, as the paint leaves the stick and stays where placed.

When there are many holes it is well to use a sheet of black paper larger than the negative, with a hole an inch square cut in it. Lay this on

the negative and fill the holes showing in the opening. This insures thoroughness. If one sees all there really are to fill at once, it results in too rapid work. Remember, you can afford to spend all the time necessary in spotting a negative, for the resulting prints will be clean and perfect, requiring no further labor. Moisten the brush at the lips for best results; it invariably works better than with clear water. For filling scratches never try to draw a line to cover the scratch, it will not be a success and will only have to be wiped off. We fill scratches by working on half an inch at a time in little dots and dashes. First run a line of dots along a half inch; then, while still moist, fill in dots between these and they will run together into such a line as never could be drawn.

If the scratches do not penetrate through the emulsion entirely, we can usually fill them neatly with pencil

markings. First rub the part to be marked on with the finger which has been barely moistened in a solution of two drams of Venice turpentine dissolved in one ounce rectified spirits of turpentine. This will enable you to mark with the pencil. Use a finely pointed, rather hard, black lead and touch very lightly indeed, following the scratch in little strokes like a continued figure 8.

If one prefers the pencil method he can first fill all holes with clear gelatine melted in a water bath, and when dry treat with the turpentine and then pencil. This is not a desirable method, however. Nothing approaches the Ideal Medium, and where it is used it will be found far better than claimed.

Spotting Prints.—There are sometimes defects in the paper, and now and then we get a black spot on the negative from some undissolved particle in the developer. If the defect in the paper results in a black spot,

nothing remains but to scratch it away and afterwards match the resulting white spot. If the defect be a white spot caused by poor paper or a black speck on the negative, nothing remains but to fill it with color that matches the print. These white spots are a mere nothing if on black and white prints; the same medium we used on the negative is excellent here also, but remember not to do in one stroke what can be done in ten finer ones, or to get it on of too deep a tint. If the print be glossy aristotype, these holes must be filled with color to match, mixed with albumen or thin shellac to bring the spotted part up to the same gloss as the rest. One generally has a porcelain palette for this work and a cup for the thin shellac or pure egg albumen attached to it. If a correct match is not secured the spot is more conspicuous than ever, and one must be careful to try the tint on paper laid on the print first. The

colors used are drop black, crimson lake, burnt umber, gamboge and Prussian blue.

In spotting portraits we sometimes not only cover actual defects in the paper or white spots, but with thin washes accent the eyebrows and lashes and the lips, shading the under lids of the eyes now and then and toning down undesirable highlights on pronounced cheek bones. If double highlights are on a face—due to light from two directions when taking the portrait—one (the least pronounced) set of highlights must be obliterated or at any rate generally is.

In outdoor work, besides spotting out actual white spots we very often run a wash of the same exact tint over the prominent parts of the foreground if not emphatic enough. Where a plate has been overdeveloped the right sense of distance is easily secured by using heavy washes on foreground objects, such as ruts in a road, bushes,

grass, logs, stones, animals; in fact, whatever may be in the foreground. If leaves have too strong highlights on them they too can be subdued, as, for instance, when they form the background of a portrait. Very emphatic high lights on glittering objects are often toned down, too, and while spotting a print one must always remember that intense high lights that detract from the value or beauty of the main object should be toned down or wholly taken out.

Lantern slides are spotted in the same manner as negatives, except that the work is best done under a powerful reading glass. What seems all right to the eye on the slide is painfully patched up when thrown upon the screen enlarged many times.

Under spotting might appropriately be included titling the negative, which consists in getting one's name or the title or a copyright notice upon the negative in reversed type. It is

not much practised now and is considered very inartistic and only permissable for business purposes. If to go on a shadow part one can print the desired wording on a slip of thin celluloid and lay that (turned face down) on the spot selected. Or one can write the title on smooth paper with albumen and when nearly dry press it upon the negative, afterwards dusting with bronze powder. If to be in black on the print it is best written or stamped directly upon the print itself, though the title as made in bronze can be etched away with the etching tool if desired.

CHAPTER VI.

MISCELLANEOUS AILMENTS.

Cracked Negatives.—A negative very often cracks in the printing frame for no apparent reason; as a rule cracking is due either to sudden change of temperature or to the fact that the glass is not absolutely flat. If desired, prints can be made from cracked negatives by either suspending the frame by string attached to each corner of the frame by tacks; gather the string together about two feet from the frame and suspend from a screw eye in a raised window. By twisting the frame it can be wound up to spin for five minutes or more and if repeated till the print is made the crack will show but little. Another method is to print the negative in a

barrel, laying it in the center of the bottom and keeping the barrel out of the sunlight. But these are really makeshifts not fit to practise unless the negative has little future value. The best way to repair a cracked negative is to remove the film and transfer it to a clean glass. First prepare a glass by dipping it in a bath made of the white of one egg well shaken in eight ounces of water and filtered Coat both sides by dipping the glass right in the tray, then rack it to dry in a room where no dust is flying. The bath in which to remove the film is made as follows: To one pint of water add one dram of hydrofluoric acid, one ounce saturated solution chrome alum, one ounce 95 per cent. alcohol. Lay the cracked negative in this bath emulsion side up. Soon the edges will begin to pucker and after a few minutes the film will detach itself entirely from the glass without any assistance. Slide the broken glasses out from un-

der, then slide the prepared glass (which should be a trifle larger) under the floating film and gently raise and transfer to a deep tray of water, which may be changed five times. Then remove the film and glass to a table, smooth out the film by means of a tuft of absorbent cotton and allow it to dry. If the film was cracked as well as the glass, one may spend a quarter of an hour in neatly joining the edges by touching here and there and pressing down with the tuft of cotton. If any line shows when dry treat as previously described for scratches.

Some good operators advise cementing and claim that the cracks never show. To accomplish this break the negative where cracked and bind the larger piece to a clear glass at the edges. Then apply Canada balsam in xylol to the cracked edge and bring the other piece to it, thus cementing the two. Bind the edge of the other

portion to the glass as at first. The balsam has practically the same refraction index as glass, hence the join does not show nor will any over (or under) flow of the balsam, show on the print, it is claimed.

Retouching.—Unless the reader could send me the result of each hour's work for criticism, I could not be persuaded to write instructions for what is ordinarily termed retouching. An untouched portrait negative is bad as a rule, but, while retouching is not particularly difficult, I consider it unteachable in mere written instructions. I advise all to learn the art under the personal supervision of a skilled retoucher, or if that is not feasible a course in one of the correspondence schools will answer nicely, as each day's work must be mailed to the master for c r i t i c i s m. Retouching smoothes out wrinkles, lines, shadows, changes expressions and in many cases seems more like an invention of

the devil than an artistic means to an end. Properly used (and that means with great moderation) it is often effective and generally necessary. Used to simply smooth out all the lines in a face that give it individuality it is abominable. A *little* knowledge of retouching coupled with no knowledge of drawing is even more disastrous than none at all. Learn it *well,* use judgment and moderation and, like all dangerous remedies, it will respond nobly.

Stains.—Sometimes a negative becomes deeply stained by prolonged development in pyro or in the fixing bath. The remedy is one ounce of a saturated solution of tartaric acid in a pint of water. Soak the negative in this bath till free of color. Stains in spots from damp silver paper are sometimes successfully removed by a local application of cyanide of potash solution ten grains to the ounce. The trouble is that the cyanide is apt to reduce the density and the spot will

probably need to be touched up with lead. One of the worst stains to remove that can be had is hydroquinone stain. Among the numerous formulæ given for its removal is the following which is generally successful, though not always:

Thiocarbamide	1 oz.
Citric acid	1 oz.
Water	15 oz.

This bath is also recommended for that three-colored fog that one sometimes gets when forcing an undertimed plate or developing an old one. Both this fog (called dichroic) and the stains from coal tar developers are very stubborn indeed, and I am not certain but that instead of bothering with this formula I would resort to silver intensification and afterwards reduce to proper density by allowing the negative to remain in the blackening bath of cyanide of silver too long, thus reducing it. This remedy is al-

most certain to be efficacious and is not difficult.

As for ordinary stains, caused by spattering something on the negative, a quick rub with alcohol will often remove them; so would water, but the negative will dry rapidly if alcohol be used. Sometimes benzine is good, and if used it ought to be followed by water. Spirits of turpentine will also remove stains sometimes, but care should be taken to remove it. There seems to be no way of removing ink stains, the ink sinks into the gelatine and remains. For all stains whose character is not known, I should advise the tartaric acid treatment first, and if that is not efficacious try the others.

To Remove Pencil Marks.—Sometimes a continued rubbing with turpentine on a tuft of cotton will even remove every vestige of retouching, but if it fails fine emery powder will have to be resorted to, rubbing it very

lightly with the finger-tip so as not to grind too deeply into the film.

Bubbles.—If one finds a bubble in the glass there is only one thing to do, and that is to remove the film as previously described and transfer to a perfect glass. If the spot is but trivial let it go and spot the prints afterward.

Varnishing.—The protection afforded by varnish is very great and all negatives that are valued should certainly be varnished. If a chemical spills on a varnished plate it can be wiped off and no stain ensues; if a sheet of paper sticks it can be wet and removed without harming the plate. Varnish also protects the gelatine from dampness. Obtain a bottle of best hard negative varnish, warm the plate slightly and flow as directed for matt varnish. It is not applied with a brush. Before flowing the negative it is best to experiment a number of times on old negatives, as until the

right balance is caught the varnish may flow off the plate.

Sharp Edges.—Many operators rub the edges of their plates one with another when loading the holders. Cuts from sharp edges when one is using chemicals are of course very disadvantageous and one may easily poison himself in this manner.

Reticulation.—In hot weather the film sometimes goes through both developer and fixer all right, only to pucker itself all up into little honeycomb markings in the wash water. It it very disastrous, as once done there is no cure for this ailment. By printing on the roughest paper it will not be noticed much, which is all the consolation one has.

Rainbow Streaks.—A manner of iridescent streak that does not show till the negative is wholly dry. Generally it does not interfere with the printing quality of the negative, and need not

be heeded. If it does, try the thiocarbamide bath.

Obstinacy in the Fixing Bath.—Sometimes a plate or film is unconscionably deliberate in fixing, even in a freshly made bath. Try the addition of a third more water. Some plates fix quickly in what might be thought a too weak bath; others require a saturated solution.

Absolute fixation is imperative if we wish the negative to keep well. With all that is said about the necessity of complete elimination of hypo in all instructions should be coupled "be sure you *fix* thoroughly." A well fixed negative will not deteriorate if only washed ten minutes in flowing water. Fix until all milkiness leaves the back, which is the first evidence that complete fixation is approaching, then transfer the negative to a fresh hypo bath and fix again for ten minutes. If this be too much trouble fix in a grooved tank, and don't remove the

plate for ten minutes after the back is clear.

Clouds are best printed in from another negative if there are none in the one to be used, and they are deemed desirable. I have seen but few so skilful as to be able to paint clouds in a negative that would deceive anybody. If it is considered necessary, however, bind the negative to a clear glass of same size, and having prepared the surface with ground glass varnish, dust on some scrapings of a very soft lead pencil and shape with a stump, being sure to get the heavy blacks (highlights) on the right side with reference to objects in the print. Some apply glue and while wet attach pink cotton to the back. As the back is fully a fourth of an inch from the paper on the double thick glass the difference will be in favor of fair looking work. If the sky portion of the negative is not quite thin there is little use

trying to fake any clouds till it has been reduced.

Removing film from negatives. When one has a number of worthless negatives the glass may be useful. Place them in a tray with a few chips or match sticks between each, and pour on common battery fluid, letting them soak in it all night. It will eat the emulsion all away and the glasses may be rinsed in cold water and then polished with tissue. The emulsion can generally be peeled from celluloid film after soaking them in warm water a little while and the clean films so secured are useful either as intensifying strips or to cut up and dissolve in acetone for plate varnish, or as a medium to make gold or bronze paint.

Removing Varnish.—Ordinary negative varnish can be removed by soaking the plate in 95 per cent. alcohol an hour and rubbing frequently with a camel's hair brush. Matt varnish is removed with ether.

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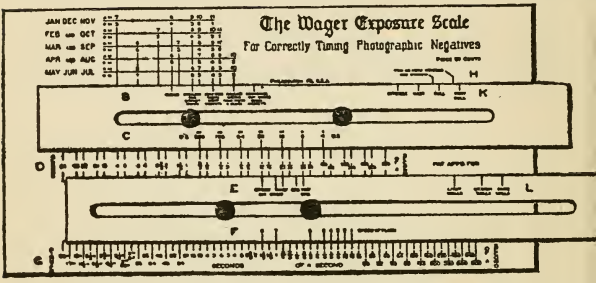

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